

February 24, 2021

Project No. 20409062

Mack Borchardt

City of Frisco

6101 Frisco Square Boulevard

Frisco, Texas 75034

RE: 2020 FOURTH QUARTER FRENCH DRAIN OPERATIONAL REPORT, FORMER EXIDE FRISCO RECYCLING FACILITY, 7471 OLD 5TH STREET, FRISCO, TEXAS

Dear Mr. Borchardt

Golder Associates Inc. (Golder) has prepared this quarterly operational report for the French Drain System (FDS) at the Frisco Community Development Corporation (CDC) Facility located at 7471 Old 5th Street in Frisco, Texas (Site). This report has been prepared in response to the Texas Commission on Environmental Quality (TCEQ) comments to Exide Technologies, Inc. (Exide) on the 2013 Affected Property Assessment Report (APAR) dated October 8th, 2013 which requested additional information regarding the performance of the French Drain and the TCEQ comments to Exide for the 2014 APAR dated May 5, 2015 which requested quarterly reports on the operation of the FDS and is being continued under new ownership by the Frisco CDC.

This report includes general FDS background information and summarizes operation of the FDS system during the fourth quarter 2020. Specifically, the quarterly report includes a discussion of the performance of the system, gallons of water intercepted, concentrations of constituents in the water, the presence and/or absence of leakage along the flood wall into Stewart Creek, the presence or absence of white crystalline substance and sample results (if applicable), and a determination as to whether ongoing discharges to Stewart Creek are continuing to occur. As stated in previous quarterly reports, survey data for the French Drain and Stewart Creek and specific notes on which days the French Drain was pumped, as requested by the TCEQ, are included in this report.

1.0 FRENCH DRAIN SYSTEM HISTORY

According to historical information contained in the French Drain Construction Report (W&M Environmental Group, Inc. [W&M], 2013), the concrete retaining wall along the southern edge of the operating area was constructed in the late 1980s to keep Stewart Creek floodwaters from entering the operating portion of the facility and to retain storm water from the operating portion of the facility for subsequent collection and treatment at the onsite water treatment plants. After construction of the retaining wall, areas of seepage along the Stewart Creek side of the retaining wall were previously observed by Exide and its consultants; primarily between the Battery Receiving Building and the Slag Treatment Building. In response, Exide sealed numerous cracks in the retaining wall. In 2011, W&M designed the FDS and associated repairs to drain any water that collected below the pavement on the north side of the FDS and eliminate seepage through the flood wall. Water from the FDS is pumped to mobile storage tanks adjacent to the wastewater treatment area for offsite disposal. Additional FDS

information, including system specifications, is included in the June 2014 French Drain Monitoring Plan (FDMP) that was previously provided to the TCEQ.

2.0 DESCRIPTION OF MONITORING AND INSPECTION ACTIVITIES

Activities completed by the City of Frisco employees and Golder during the fourth quarter 2020 included the following:

- Daily (weekday) Inspections and Maintenance – Inspection of the flowmeter and recording flow rate and totalizer reading.
- Weekly Inspections and Maintenance – Inspection and maintenance of the FDS collection sump.
- Quarterly Inspections and Maintenance –
 - Inspection of the FDS for sedimentation.
 - Inspection of the Flood Wall waterstop and joint fillers.
 - Inspection of the Flood Wall for signs of seepage through the wall, cracks or other signs of damage.

Monitoring and inspection activities completed for the FDS in accordance with the FDMP during the fourth quarter 2020 were completed by both City of Frisco Site personnel as well as Golder staff. City of Frisco Site personnel conducted daily and weekly activities and Golder personnel conducted the quarterly inspection. Golder inspected the outside portion of the flood wall and noticed minor cracks in expansion joints, City of Frisco Site personnel were notified and shown areas to repair. According to City of Frisco Site personnel, these locations were filled with an epoxy filler (plastic roofing cement) the week of January 11, 2021.

A more detailed description of the results of data collection activities and inspections is included in Section 3.0 below.

3.0 OBSERVATIONS AND RESULTS

3.1 Gallons of Water Intercepted

The flow rate and totalizer reading for the FDS were generally recorded each weekday. Table 1 summarizes the recorded flows of the FDS and the offsite daily precipitation based on data recorded at a local weather station located in Frisco, Texas (data obtained from <https://www.wunderground.com/dashboard/pws/KTXDALLA25>).

3.2 Groundwater and Perched Water Level Observations

Water levels for MW-26, MW-29, MW-31, MW-32, MW-33, MW-34, MW-35, and MW-46 were measured and recorded during the fourth quarter 2020. Table 2 summarizes the groundwater depths and elevations from this sampling event as well as previous data and includes the elevations of the banks and bottom of Stewart Creek at transects located near the upstream, midpoint and downstream end of the FDS. Monitoring well locations, transect locations and Stewart Creek elevations are shown on Figure 1. Water levels were generally higher during the fourth quarter of 2020 than in the previous event.

3.3 Floodwall Seepage

A Floodwall inspection was performed on December 8th, 2020. The flood wall waterstops and joint fillers were generally in good condition and no major cracks were recorded. Minor cracks were observed in expansion joints by Golder staff and reported to City of Frisco Site personnel for repairs. According to City of Frisco Site personnel, these locations were filled with an epoxy filler (plastic roofing cement) the week of January 11, 2021.

3.4 White Crystalline Material Observations

White crystalline material was not observed on the flood wall during the Golder inspection conducted on December 8, 2020. As such, no samples of white crystalline material were collected or analyzed.

3.5 Laboratory Analytical Results

Water samples were collected by City of Frisco Site personnel from the FDS during the fourth quarter 2020. Sampling of the French Drain was conducted on December 1, 2020. All analytical results from these samples are included in Table 3 and Attachment A.

4.0 SUMMARY OF SYSTEM PERFORMANCE

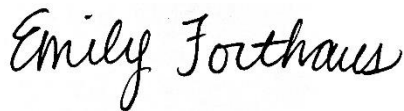
Based on the results of the inspection and monitoring activities for the fourth quarter 2020 described above, the FDS appears to be operating as designed.

5.0 CLOSURE

Golder appreciates the opportunity to assist the Frisco Community Development Corporation with this project. Please contact us if you have any questions or comments concerning this quarterly operational report.

Sincerely,

Golder Associates Inc.



Emily P. Forthaus
Project Geological Engineer



Frederick M. Booth
Principal and Practice Leader

EPF/FMB

CC R. Stuart Goldsmith, Texas Commission on Environmental Quality
Brad Weaver – JEM Connections LLC (City of Frisco)

Attachments: Table 1: French Drain Daily Flow Volumes
Table 2: Perched and Groundwater Monitoring Well Water Elevations
Table 3: French Drain Water Analytical Data
Figure 1: Stewart Creek Transects
Attachment A: French Drain Water Laboratory Analytical Results

Table 1
French Drain Daily Flow Volumes

Oct-20			Nov-20			Dec-20		
Total Flow/Water Removed (gal)		Total Precip (in)	Total Flow/Water Removed (gal)		Total Precip (in)	Total Flow/Water Removed (gal)		Total Precip (in)
13,672		2.41	5,940		1.18	7,956		3.05
Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)	Date	Daily Flow (gal)	Daily Precip (in)
Thursday, October 1, 2020	98	0.00	Sunday, November 1, 2020	NR	0.00	Tuesday, December 1, 2020	286	0.00
Friday, October 2, 2020	206	0.00	Monday, November 2, 2020	838	0.00	Wednesday, December 2, 2020	223	0.00
Saturday, October 3, 2020	NR	0.00	Tuesday, November 3, 2020	208	0.00	Thursday, December 3, 2020	114	0.00
Sunday, October 4, 2020	NR	0.00	Wednesday, November 4, 2020	182	0.00	Friday, December 4, 2020	56	0.00
Monday, October 5, 2020	311	0.00	Thursday, November 5, 2020	231	0.00	Saturday, December 5, 2020	NR	0.00
Tuesday, October 6, 2020	82	0.00	Friday, November 6, 2020	99	0.00	Sunday, December 6, 2020	NR	0.05
Wednesday, October 7, 2020	102	0.00	Saturday, November 7, 2020	NR	0.00	Monday, December 7, 2020	226	0.00
Thursday, October 8, 2020	104	0.00	Sunday, November 8, 2020	NR	0.00	Tuesday, December 8, 2020	91	0.00
Friday, October 9, 2020	99	0.00	Monday, November 9, 2020	349	0.00	Wednesday, December 9, 2020	57	0.00
Saturday, October 10, 2020	NR	0.00	Tuesday, November 10, 2020	101	0.00	Thursday, December 10, 2020	54	0.00
Sunday, October 11, 2020	NR	0.00	Wednesday, November 11, 2020	174	0.00	Friday, December 11, 2020	40	0.15
Monday, October 12, 2020	359	NR	Thursday, November 12, 2020	97	0.00	Saturday, December 12, 2020	NR	0.00
Tuesday, October 13, 2020	290	0.00	Friday, November 13, 2020	99	0.00	Sunday, December 13, 2020	NR	0.74
Wednesday, October 14, 2020	53	0.00	Saturday, November 14, 2020	NR	0.00	Monday, December 14, 2020	2,317	0.00
Thursday, October 15, 2020	303	0.00	Sunday, November 15, 2020	NR	0.00	Tuesday, December 15, 2020	502	0.02
Friday, October 16, 2020	99	0.00	Monday, November 16, 2020	287	0.00	Wednesday, December 16, 2020	436	0.00
Saturday, October 17, 2020	NR	0.00	Tuesday, November 17, 2020	98	0.00	Thursday, December 17, 2020	252	0.00
Sunday, October 18, 2020	NR	0.00	Wednesday, November 18, 2020	74	0.00	Friday, December 18, 2020	193	0.00
Monday, October 19, 2020	241	0.00	Thursday, November 19, 2020	77	0.00	Saturday, December 19, 2020	NR	0.00
Tuesday, October 20, 2020	52	0.04	Friday, November 20, 2020	78	0.00	Sunday, December 20, 2020	NR	0.00
Wednesday, October 21, 2020	98	0.00	Saturday, November 21, 2020	NR	0.00	Monday, December 21, 2020	339	0.00
Thursday, October 22, 2020	50	0.00	Sunday, November 22, 2020	NR	0.05	Tuesday, December 22, 2020	99	0.00
Friday, October 23, 2020	962	1.79	Monday, November 23, 2020	138	0.00	Wednesday, December 23, 2020	106	0.00
Saturday, October 24, 2020	NR	0.00	Tuesday, November 24, 2020	53	0.60	Thursday, December 24, 2020	55	0.00
Sunday, October 25, 2020	NR	0.03	Wednesday, November 25, 2020	533	0.00	Friday, December 25, 2020	105	0.00
Monday, October 26, 2020	3,506	0.25	Thursday, November 26, 2020	226	0.00	Saturday, December 26, 2020	NR	0.00
Tuesday, October 27, 2020	2,568	0.11	Friday, November 27, 2020	116	0.00	Sunday, December 27, 2020	NR	0.00
Wednesday, October 28, 2020	2,413	0.18	Saturday, November 28, 2020	NR	0.53	Monday, December 28, 2020	161	0.00
Thursday, October 29, 2020	1,122	0.01	Sunday, November 29, 2020	NR	0.00	Tuesday, December 29, 2020	58	0.01
Friday, October 30, 2020	554	0.00	Monday, November 30, 2020	1,882	0.00	Wednesday, December 30, 2020	276	0.47
Saturday, October 31, 2020	NR	0.00				Thursday, December 31, 2020	1,910	1.61

Notes:

Precipitation data obtained from: <https://www.wunderground.com/dashboard/pws/KTXDALLA25>

Daily flow volumes provided by Site.

NR - Not Recorded.

Prepared by: KAB 12/01/2020, PBS 01/15/2021

Checked by: EPF 02/03/2021

Reviewed by: FMB 02/22/2021

Table 2
Perched and Groundwater Monitoring Well Water Elevations

Stewart Creek Elevations					
Survey Point			Measurement Date	Elevation (ft msl)	
Transect 1					
Top of North Bank			3/7/2016	628.74	
Toe of North Bank			3/7/2016	624.79	
Creek Centerline			3/7/2016	622.79	
Toe of South Bank			3/7/2016	624.27	
Top of South Bank			3/7/2016	634.09	
Transect 2					
Top of North Bank			3/7/2016	627.97	
Toe of North Bank			3/7/2016	623.57	
Toe of South Bank			3/7/2016	624.04	
Top of South Bank			3/7/2016	630.52	
Transect 3					
Top of North Bank			3/7/2016	628.20	
Toe of North Bank			3/7/2016	622.70	
Toe of South Bank			3/7/2016	622.88	
Top of South Bank			3/7/2016	628.18	
Well ID	TOC Elevation (ft msl)	Screen Interval (ft bgs)	Measurement Date	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft msl)
MW-26 (Groundwater)	631.93	5-15	3/11/2013	9.98	621.95
			4/5/2013	9.52	622.41
			4/29/2013	9.21	622.72
			1/21/2014	5.80	626.13
			7/29/2014	5.79	626.14
			9/23/2014	8.9	623.03
			6/12/2015	5.32	626.61
			9/8/2015	5.72	626.21
			12/17/2015	5.32	626.61
			2/29/2016	5.41	626.52
			6/1/2016	5.47	626.46
			9/8/2016	5.51	626.42
			12/2/2016	5.65	626.28
			3/2/2017	5.81	626.12
			5/4/2017	6.21	625.72
			8/28/2017	5.56	626.37
			11/27/2017	5.71	626.22
			2/15/2018	5.75	626.18
			5/9/2018	5.65	626.28
			9/24/2018	NA	NA
			12/4/2018	5.60	626.33
			3/7/2019	5.64	626.29
			6/3/2019	5.92	626.01
			9/9/2019	5.87	626.06
			12/2/2019	5.63	626.30
			2/26/2020	5.71	626.22
			5/27/2020	4.67	627.26
			8/27/2020	6.12	625.81
			12/8/2020	5.41	626.52

Table 2
Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation (ft msl)	Screen Interval (ft bgs)	Measurement Date	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft msl)
MW-29 (Groundwater)	633.51	4.5-14.5	3/11/2013	13.08	620.43
			4/5/2013	6.96	626.55
			4/29/2013	6.56	626.95
			1/21/2014	6.62	626.89
			7/29/2014	6.57	626.94
			9/23/2014	6.04	627.47
			6/12/2015	5.21	628.30
			9/8/2015	6.35	627.16
			12/17/2015	5.67	627.84
			2/29/2016	5.79	627.72
			6/1/2016	5.69	627.82
			9/8/2016	5.67	627.84
			12/2/2016	6.25	627.26
			3/2/2017	6.51	627.00
			5/4/2017	5.80	627.71
			8/28/2017	5.90	627.61
			11/27/2017	6.77	626.74
			2/15/2018	6.77	626.74
			5/9/2018	5.95	627.56
			9/24/2018	NA	NA
			12/4/2018	6.12	627.39
			3/7/2019	6.07	627.44
			6/3/2019	6.27	627.24
			9/9/2019	6.25	627.26
			12/2/2019	6.27	627.24
			2/26/2020	5.18	628.33
			5/27/2020	5.09	628.42
			8/27/2020	6.96	626.55
			12/8/2020	6.06	627.45
MW-31 (Groundwater)	636.71	8-23	5/13/2013	10.58	626.13
			1/21/2014	10.87	625.84
			7/29/2014	10.81	625.90
			9/23/2014	11.32	625.39
			6/12/2015	9.61	627.10
			9/8/2015	10.53	626.18
			12/17/2015	9.42	627.29
			2/29/2016	9.78	626.93
			6/1/2016	9.82	626.89
			9/8/2016	9.90	626.81
			12/2/2016	10.21	626.50
			3/2/2017	12.23	624.48
			5/4/2017	10.58	626.13
			8/28/2017	9.99	626.72
			11/27/2017	10.82	625.89
			2/15/2018	10.90	625.81
			5/9/2018	10.19	626.52
			9/24/2018	NA	NA
			12/4/2018	10.42	626.29
			3/7/2019	10.13	626.58
			6/3/2019	10.31	626.40
			9/9/2019	10.51	626.20
			12/2/2019	9.85	626.86
			2/26/2020	8.96	627.75
			5/27/2020	8.54	628.17
			8/27/2020	10.56	626.15
			12/8/2020	9.71	627.00

Table 2
Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation (ft msl)	Screen Interval (ft bgs)	Measurement Date	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft msl)
MW-32 (Perched)	630.96	2.5-5	1/21/2014	4.16	626.80
			7/29/2014	4.59	626.37
			9/23/2014	4.59	626.37
			6/12/2015	3.79	627.17
			9/8/2015	R	R
			2/29/2016	3.57	627.39
			6/1/2016	3.62	627.34
			9/8/2016	3.83	627.13
			12/2/2016	3.40	627.56
			3/2/2017	3.26	627.70
			5/4/2017	3.49	627.47
			8/28/2017	3.55	627.41
			11/27/2017	3.54	627.42
			2/15/2018	3.21	627.75
			5/9/2018	3.30	627.66
			9/24/2018	NA	NA
			12/4/2018	2.70	628.26
			3/7/2019	3.88	627.08
			6/3/2019	3.67	627.29
			9/9/2019	3.92	627.04
			12/2/2019	3.32	627.64
			2/26/2020	2.92	628.04
			5/27/2020	2.39	628.57
			8/27/2020	3.86	627.10
			12/8/2020	3.16	627.80
MW-33 (Perched)	632.59	2.5-5	1/21/2014	1.09	631.50
			7/29/2014	2.14	630.45
			9/23/2014	1.55	631.04
			12/17/2015	1.21	631.38
			2/29/2016	1.07	631.52
			6/1/2016	1.09	631.50
			9/8/2016	1.07	631.52
			12/2/2016	0.95	631.64
			3/2/2017	0.88	631.71
			5/4/2017	0.91	631.68
			8/28/2017	0.86	631.73
			11/27/2017	0.85	631.74
			2/15/2018	0.81	631.78
			5/9/2018	0.80	631.79
			9/24/2018	NA	NA
			12/4/2018	0.95	631.64
			3/7/2019	0.64	631.95
			6/3/2019	0.92	631.67
			9/9/2019	1.13	631.46
			12/2/2019	0.33	632.26
			2/26/2020	0.39	632.20
			5/27/2020	0.16	632.43
			8/27/2020	0.99	631.60
			12/8/2020	0.46	632.13
MW-34 (Perched)	632.83	2.5-5	1/21/2014	4.31	628.52
			7/29/2014	4.45	628.38
			9/23/2014	4.45	628.38
			6/12/2015	3.42	629.41
			12/17/2015	3.03	629.80
			2/29/2016	1.95	630.88
			6/1/2016	2.04	630.79
			9/8/2016	2.59	630.24
			12/2/2016	2.50	630.33
			3/2/2017	2.75	630.08
			5/4/2017	3.93	628.90
			8/28/2017	2.95	629.88
			11/27/2017	3.62	629.21
			2/15/2018	3.71	629.12
			5/9/2018	3.57	629.26
			9/24/2018	NA	NA
			12/4/2018	3.08	629.75
			3/7/2019	3.41	629.42
			6/3/2019	3.17	629.66
			9/9/2019	3.31	629.52
			12/2/2019	2.89	629.94
			2/26/2020	1.37	631.46
			5/27/2020	1.86	630.97
			8/27/2020	3.49	629.34
			12/8/2020	2.58	630.25

Table 2
Perched and Groundwater Monitoring Well Water Elevations

Well ID	TOC Elevation (ft msl)	Screen Interval (ft bgs)	Measurement Date	Depth to Groundwater (ft btoc)	Groundwater Elevation (ft msl)
MW-35 (Perched)	632.55	2.5-5	1/21/2014	DRY	DRY
			7/29/2014	DRY	DRY
			9/23/2014	DRY	DRY
			6/12/2015	4.97	627.58
			9/8/2015	DRY	DRY
			12/17/2015	4.10	628.45
			2/29/2016	3.86	628.69
			6/1/2016	3.99	628.56
			9/8/2016	4.13	628.42
			12/2/2016	3.85	628.70
			3/2/2017	3.94	628.61
			5/4/2017	4.58	627.97
			8/28/2017	4.16	628.39
			11/27/2017	3.98	628.57
			2/15/2018	3.81	628.74
			5/9/2018	3.92	628.63
			9/24/2018	NA	NA
			12/4/2018	3.74	628.81
			3/7/2019	3.65	628.90
			6/3/2019	3.91	628.64
			9/9/2019	4.05	628.50
			12/2/2019	4.06	628.49
			2/26/2020	3.89	628.66
			5/27/2020	2.95	629.60
			8/27/2020	4.52	628.03
			12/8/2020	4.06	628.49
MW-46 (Groundwater)	630.98	10-20	1/21/2014	5.21	625.77
			7/29/2014	5.47	625.51
			9/23/2014	5.08	625.90
			6/12/2015	5.50	625.48
			9/8/2015	4.17	626.81
			2/29/2016	5.23	625.75
			6/1/2016	5.30	625.68
			9/8/2016	5.41	625.57
			12/2/2016	4.96	626.02
			3/2/2017	5.00	625.98
			5/4/2017	5.50	625.48
			8/28/2017	4.44	626.54
			11/27/2017	5.41	625.57
			2/15/2018	5.81	625.17
			5/9/2018	4.24	626.74
			9/24/2018	NA	NA
			12/4/2018	4.61	626.37
			3/7/2019	4.29	626.69
			6/3/2019	4.61	626.37
			9/9/2019	4.41	626.57
			12/2/2019	4.32	626.66
			2/26/2020	3.29	627.69
			5/27/2020	3.26	627.72
			8/27/2020	4.89	626.09
			12/8/2020	4.21	626.77

Notes:

1. bgs - below ground surface.
2. msl - above mean sea level.
3. btoc - below top of casing.
4. R - depth to groundwater was disqualified as a field error because depth was greater than total depth of the well.
5. NA - not accessible due to Site conditions.

Prepared by: PBS 01/15/2021

Checked by: EPF 02/03/2021

Reviewed by: FMB 02/22/2021

Table 3
French Drain Water
Analytical Data

	Sample ID FD120120-01		Sample ID FD120120-02	
	Laboratory ID 20120035-001		Laboratory ID 20120035-002	
	Date Collected 12/1/2020 13:30		Date Collected 12/1/2020 13:40	
Metals				
Parameter:	Result	Units	Result	Units
Arsenic	NA	mg/L	ND	mg/L
Barium	NA	mg/L	0.034	mg/L
Cadmium	NA	mg/L	ND	mg/L
Chromium	NA	mg/L	0.011	mg/L
Copper	NA	mg/L	ND	mg/L
Iron	NA	mg/L	ND	mg/L
Lead	NA	mg/L	0.008	mg/L
Manganese	NA	mg/L	0.002	mg/L
Nickel	NA	mg/L	ND	mg/L
Selenium	NA	mg/L	0.0154	mg/L
Silver	NA	mg/L	ND	mg/L
Zinc	NA	mg/L	0.015	mg/L
Mercury	NA	mg/L	ND	mg/L
General Chemistry				
Parameter:	Result	Units	Result	Units
Total Suspended Solids	ND	mg/L	NA	mg/L
Total Dissolved Solids	745	mg/L	NA	mg/L

Notes:

- 1) NA - Not Analyzed
- 2) ND - Not Detected
- 3) mg/L - milligrams per liter

Prepared by: PBS 01/15/2021

Checked by: EPF 02/03/2021

Reviewed by: FMB 02/22/2021



LEGEND

- Monitoring Well Location
- Transect Location
- French Drain
- Flood Wall
- Approximate Creek Centerline

NOTE(S)

1. ELEVATIONS SHOWN ARE MEASURED IN FEET ABOVE MEAN SEA LEVEL.

REFERENCE(S)

1. ELEVATIONS COLLECTED BY BRITTAIN & CRAWFORD, LLC ON MARCH 7, 2016
2. AERIAL IMAGERY - APRIL, 2017

CLIENT

FRISCO COMMUNITY DEVELOPMENT CORPORATION

PROJECT

FRENCH DRAIN QUARTERLY REPORT
FRISCO, TEXAS

TITLE

STEWART CREEK TRANSECTS

CONSULTANT	YYYY-MM-DD	2021-02-22
DESIGNED	EPF	
PREPARED	EPF	
REVIEWED	FMB	
APPROVED	FMB	

PROJECT NO. 130208605

CONTROL 1302086Y003

REV. 0

FIGURE 1

R:\TH: C:\Users\jwhite\Documents\GIS\Packaging\1302086Y003.mxd LAST SAVED ON: 2020-12-02 AT: 12:05:54 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

Thursday, December 10, 2020

City of Frisco

Eduardo Salazar

7471 Fifth Street, P.O. Box 250

Frisco, TX 75034

Tel: (972) 335-2121 Fax:

Re: Project Name: Raw Grab Samples Quarterly

Oxidor received 6 liquid sample(s). The analysis performed were as follows:

<u>Sample</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Analysis</u>
20120035-001	FD120120-01	Liquid	12/1/2020 13:30	Total Dissolved Solids, Total Suspended Solids
20120035-002	FD120120-02	Liquid	12/1/2020 13:40	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
20120035-003	SO120120-01	Liquid	12/1/2020 13:50	Total Dissolved Solids, Total Suspended Solids
20120035-004	SO120120-02	Liquid	12/1/2020 13:50	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc
20120035-005	L120120-01	Liquid	12/1/2020 14:00	Total Dissolved Solids, Total Suspended Solids
20120035-006	L120120-02	Liquid	12/1/2020 14:00	Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Zinc

To the best of my knowledge, all problems/ anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified via associated flags and/ or in the case narrative. The analyses and data met requirements of NELAP except where noted. All non-NELAP methods are identified accordingly and all estimated uncertainties of test results are within method or EPA specifications.

Respectfully submitted,



Charles Brungardt

President

City of Frisco
Eduardo Salazar

Analytical Report

Project Name: **Raw Grab Samples Quarterly**

Customer Sample ID: **FD120120-01**

Oxidor Sample ID: 20120035-001

Sample Received: 12/2/2020

Matrix: **Liquid**

Sample Collected: **12/1/2020 13:30**

Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
General Chemistry								
Total Dissolved Solids	50	50.0	745	mg/L	12/03/20 16:15	SM-2540-C	K.V.	
Total Suspended Solids	5	5.0	ND	mg/L	12/03/20 10:15	SM-2540-D	K.V.	

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Analytical Report

Project Name: **Raw Grab Samples Quarterly**

Customer Sample ID: **FD120120-02**

Oxidor Sample ID: 20120035-002

Sample Received: 12/2/2020

Matrix: **Liquid**

Sample Collected: **12/1/2020 13:40**

Parameter	MQL	SQL	Result	Units	Date Analyzed	Method	Analyst	Flags
Metals								
<i>Digested by method 200.8 on 12/04/20 at 09:31</i>								
Arsenic	0.005	0.005	ND	mg/L	12/09/20 15:55	200.8	K.E.L.	
Barium	0.005	0.005	0.034	mg/L	12/09/20 15:55	200.8	K.E.L.	
Cadmium	0.001	0.0010	ND	mg/L	12/09/20 15:55	200.8	K.E.L.	
Chromium	0.005	0.005	0.011	mg/L	12/09/20 15:55	200.8	K.E.L.	
Copper	0.005	0.0050	ND	mg/L	12/09/20 15:55	200.8	K.E.L.	
Iron	0.5	0.50	ND	mg/L	12/09/20 15:55	200.8	K.E.L.	
Lead	0.005	0.005	0.008	mg/L	12/09/20 15:55	200.8	K.E.L.	
Manganese	0.002	0.002	0.002	mg/L	12/09/20 15:55	200.8	K.E.L.	
Nickel	0.005	0.005	ND	mg/L	12/09/20 15:55	200.8	K.E.L.	
Selenium	0.005	0.0050	0.0154	mg/L	12/09/20 15:55	200.8	K.E.L.	
Silver	0.001	0.001	ND	mg/L	12/09/20 15:55	200.8	K.E.L.	
Zinc	0.005	0.005	0.015	mg/L	12/09/20 15:55	200.8	K.E.L.	
<i>Digested by method 245.1 on 12/04/20 at 09:10</i>								
Mercury	0.0002	0.0002	ND	mg/L	12/04/20 15:21	245.1	L.Z.	



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Sample Cross Reference

Project Name: **Raw Grab Samples Quarterly**

Customer ID:	Lab ID:	Test	Method	QCBatchID:
FD120120-01	20120035-001	Total Dissolved Solids	SM-2540-C	TDS__10127_L
		Total Suspended Solids	SM-2540-D	TSS__02945_L
FD120120-02	20120035-002	Mercury	245.1	MERC_01247_L
		Arsenic	200.8	META_18479_L
		Selenium	200.8	META_18479_L
		Silver	200.8	META_18479_L
		Zinc	200.8	META_18479_L
		Manganese	200.8	META_18479_L
		Lead	200.8	META_18479_L
		Iron	200.8	META_18479_L
		Copper	200.8	META_18479_L
		Chromium	200.8	META_18479_L
		Nickel	200.8	META_18479_L
		Barium	200.8	META_18479_L
		Cadmium	200.8	META_18479_L
SO120120-01	20120035-003	Total Dissolved Solids	SM-2540-C	TDS__10327_L
		Total Suspended Solids	SM-2540-D	TSS__02945_L
SO120120-02	20120035-004	Mercury	245.1	MERC_01247_L
		Copper	200.8	META_18479_L
		Silver	200.8	META_18479_L
		Selenium	200.8	META_18479_L
		Nickel	200.8	META_18479_L
		Manganese	200.8	META_18479_L
		Iron	200.8	META_18479_L
		Chromium	200.8	META_18479_L
		Zinc	200.8	META_18479_L
		Cadmium	200.8	META_18479_L
		Barium	200.8	META_18479_L
		Arsenic	200.8	META_18479_L
		Lead	200.8	META_18479_L
L120120-01	20120035-005	Total Dissolved Solids	SM-2540-C	TDS__10327_L
		Total Suspended Solids	SM-2540-D	TSS__02945_L
L120120-02	20120035-006	Mercury	245.1	MERC_01247_L
		Lead	200.8	META_18479_L
		Arsenic	200.8	META_18479_L
		Barium	200.8	META_18479_L
		Cadmium	200.8	META_18479_L
		Chromium	200.8	META_18479_L
		Iron	200.8	META_18479_L
		Manganese	200.8	META_18479_L
		Nickel	200.8	META_18479_L
		Selenium	200.8	META_18479_L
		Silver	200.8	META_18479_L
		Zinc	200.8	META_18479_L
		Copper	200.8	META_18479_L

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QC Summary

Project Name: **Raw Grab Samples Quarterly**

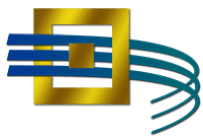
QC Type	Parameter	Result	Reference Value	Spike Conc	Rec	Rec Limits	RPD	RPD Limits	Flags
QCBatchID TDS__10127_L									
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	955 mg/L		1000 mg/L	96%	90-110%			
LCSD	Total Dissolved Solids	945 mg/L		1000 mg/L	95%	90-110%	1.1%	0-5%	
Replicate	Total Dissolved Solids	560 mg/L	560 mg/L				0.0%	0-5%	
QCBatchID TDS__10327_L									
Blank	Total Dissolved Solids	ND mg/L							
LCS	Total Dissolved Solids	985 mg/L		1000 mg/L	99%	90-110%			
LCSD	Total Dissolved Solids	980 mg/L		1000 mg/L	98%	90-110%	0.5%	0-5%	
Replicate	Total Dissolved Solids	385 mg/L	395 mg/L				2.6%	0-5%	
QCBatchID TSS__02945_L									
Blank	Total Suspended Solids	ND mg/L							
LCS	Total Suspended Solids	480 mg/L		500 mg/L	96%	85-115%			
LCSD	Total Suspended Solids	489 mg/L		500 mg/L	98%	85-115%	1.9%	0-15%	
Replicate	Total Suspended Solids	4970 mg/L	5130 mg/L				3.2%	0-15%	
QCBatchID MERC_01247_L									
Blank	Mercury	ND mg/L							
LCS	Mercury	0.0093 mg/L		0.01 mg/L	93%	85-115%			
LCSD	Mercury	0.0094 mg/L		0.01 mg/L	94%	85-115%	1.1%	0-25%	
MS	Mercury	0.0095 mg/L	ND	0.01 mg/L	95%	80-120%			
MSD	Mercury	0.0093 mg/L	ND	0.01 mg/L	93%	80-120%	2.1%	0-25%	
QCBatchID META_18479_L									
Blank	Arsenic	ND mg/L							
	Barium	ND mg/L							
	Cadmium	ND mg/L							
	Chromium	ND mg/L							
	Copper	ND mg/L							
	Iron	ND mg/L							
	Lead	ND mg/L							
	Manganese	ND mg/L							
	Nickel	ND mg/L							
	Selenium	ND mg/L							
	Silver	ND mg/L							
	Zinc	ND mg/L							
LCS	Arsenic	0.105 mg/L		0.1 mg/L	105%	85-115%			
	Barium	0.099 mg/L		0.1 mg/L	99%	85-115%			
	Cadmium	0.1029 mg/L		0.1 mg/L	103%	85-115%			
	Chromium	0.094 mg/L		0.1 mg/L	94%	85-115%			
	Copper	0.1016 mg/L		0.1 mg/L	102%	85-115%			
	Iron	10.0 mg/L		10.1 mg/L	99%	85-115%			
	Lead	0.098 mg/L		0.1 mg/L	98%	85-115%			

City of Frisco
Eduardo Salazar

QC Summary

Project Name: **Raw Grab Samples Quarterly**

QC Type	Parameter	Result	Reference Value	Spike Conc	Rec	Rec Limits	RPD	RPD Limits	Flags
QCBatchID META_18479_L									
	Manganese	0.090 mg/L		0.1 mg/L	90%	85-115%			
	Nickel	0.099 mg/L		0.1 mg/L	99%	85-115%			
	Selenium	0.1015 mg/L		0.1 mg/L	102%	85-115%			
	Silver	0.103 mg/L		0.1 mg/L	103%	85-115%			
	Zinc	0.099 mg/L		0.1 mg/L	99%	85-115%			
LCSD	Arsenic	0.103 mg/L		0.1 mg/L	103%	85-115%	1.9%	0-20%	
	Barium	0.103 mg/L		0.1 mg/L	103%	85-115%	4.0%	0-20%	
	Cadmium	0.1023 mg/L		0.1 mg/L	102%	85-115%	0.6%	0-20%	
	Chromium	0.094 mg/L		0.1 mg/L	94%	85-115%	0.0%	0-20%	
	Copper	0.1005 mg/L		0.1 mg/L	101%	85-115%	1.1%	0-20%	
	Iron	9.89 mg/L		10.1 mg/L	98%	85-115%	1.1%	0-20%	
	Lead	0.097 mg/L		0.1 mg/L	97%	85-115%	1.0%	0-20%	
	Manganese	0.090 mg/L		0.1 mg/L	90%	85-115%	0.0%	0-20%	
	Nickel	0.099 mg/L		0.1 mg/L	99%	85-115%	0.0%	0-20%	
	Selenium	0.0998 mg/L		0.1 mg/L	100%	85-115%	1.7%	0-20%	
	Silver	0.095 mg/L		0.1 mg/L	95%	85-115%	8.1%	0-20%	
	Zinc	0.094 mg/L		0.1 mg/L	94%	85-115%	5.2%	0-20%	
MS	Arsenic	0.537 mg/L	ND	0.5 mg/L	107%	80-120%			
	Barium	0.540 mg/L	0.034 mg/L	0.5 mg/L	101%	80-120%			
	Cadmium	0.5039 mg/L	ND	0.5 mg/L	101%	80-120%			
	Chromium	0.501 mg/L	0.011 mg/L	0.5 mg/L	98%	80-120%			
	Copper	0.5013 mg/L	0.0028 mg/L	0.5 mg/L	100%	80-120%			
	Iron	50.0 mg/L	ND	50.5 mg/L	99%	80-120%			
	Lead	0.491 mg/L	0.008 mg/L	0.5 mg/L	97%	80-120%			
	Manganese	0.461 mg/L	0.002 mg/L	0.5 mg/L	92%	80-120%			
	Nickel	0.513 mg/L	ND	0.5 mg/L	103%	80-120%			
	Selenium	0.5243 mg/L	0.0154 mg/L	0.5 mg/L	102%	80-120%			
	Silver	0.450 mg/L	ND	0.5 mg/L	90%	80-120%			
	Zinc	0.480 mg/L	0.002 mg/L	0.5 mg/L	96%	80-120%			
MSD	Arsenic	0.524 mg/L	ND	0.5 mg/L	105%	80-120%	2.5%	0-20%	
	Barium	0.535 mg/L	0.034 mg/L	0.5 mg/L	100%	80-120%	0.9%	0-20%	
	Cadmium	0.5054 mg/L	ND	0.5 mg/L	101%	80-120%	0.3%	0-20%	
	Chromium	0.513 mg/L	0.011 mg/L	0.5 mg/L	100%	80-120%	2.4%	0-20%	
	Copper	0.5045 mg/L	0.0028 mg/L	0.5 mg/L	100%	80-120%	0.6%	0-20%	
	Iron	49.7 mg/L	ND	50.5 mg/L	98%	80-120%	0.6%	0-20%	
	Lead	0.492 mg/L	0.008 mg/L	0.5 mg/L	97%	80-120%	0.2%	0-20%	
	Manganese	0.464 mg/L	0.002 mg/L	0.5 mg/L	92%	80-120%	0.7%	0-20%	
	Nickel	0.526 mg/L	ND	0.5 mg/L	105%	80-120%	2.5%	0-20%	
	Selenium	0.5105 mg/L	0.0154 mg/L	0.5 mg/L	99%	80-120%	2.7%	0-20%	
	Silver	0.444 mg/L	ND	0.5 mg/L	89%	80-120%	1.3%	0-20%	
	Zinc	0.475 mg/L	0.002 mg/L	0.5 mg/L	95%	80-120%	1.1%	0-20%	



City of Frisco
Eduardo Salazar

Case Narrative

Project Name: **Raw Grab Samples Quarterly**

D-1	Elevated reporting limit(s) due to dilution. Dilution resulted from sample matrix interference, high target analyte(s), high non-target analyte(s) or a combination thereof.
ppm	Parts per million = mg/Kg or mg/L
ppb	Parts per billion = ug/Kg or ug/L
MQL	Method quantitation limit
SDL	Sample detection limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilutions)
SQL	Sample quantitation limit (reflects any laboratory adjustments made to the sample during analysis such as dry weight or dilution)
ND	Analyte not detected at or above SQL
LCS/LCSD	Laboratory control spike / Laboratory control spike duplicate
MS/MSD	Matrix spike / Matrix spike duplicate
RPD	Relative percent difference
Sub	Analysis performed by subcontract laboratory

Solid samples submitted to the laboratory for analysis by SW-846 Method 8260 should be collected by SW-846 Method 5035. Those samples in which concentrations are less than or equal to 200 ug/kg should be collected in accordance with SW-846 Method 5035, Section 6.2.1. For samples with higher concentrations (> 200 ug/kg), collect samples by SW-846 Method 5035, Section 6.2.2 or 6.2.3. Sample results may not accurately reflect volatile concentrations if collection is not performed according to the referenced methodologies.

Solid samples submitted to the laboratory for analysis by TNRCC Method 1005 should be collected in accordance to the methodology. Those samples in which concentrations of C6 to C12 are known to be absent, or fall under the Petroleum Storage Tank (PST) rule, may be collected in bulk sample jars in accordance with TNRCC Method 1005, Revision 3 clarifications. For samples with concentrations of C6 to C12, or where knowledge of the site does not exist, collect samples by TNRCC Method 1005, Section 6.1. Sample results may not accurately reflect TPH concentrations if collection is not performed according to the referenced methodologies.

Solid sample results reported on a dry weight basis for all applicable analysis, unless otherwise noted. Dry weight calculations based upon % solids obtained as outlined in EPA method 5035 section 7.5.

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Oxidior Laboratories, LLC certifies to the best of its knowledge that all results contained in this report are consistent with the National Environmental Laboratory Accreditation Program, except where otherwise noted.

City of Frisco
Eduardo Salazar

Sample Preservation Verification

Project Name: **Raw Grab Samples Quarterly**

Receipt temp: **1.5 °C on Ice**

Receipt method: **Customer Courier**

Custody seal intact: **Yes**

All samples / labels received intact: **Yes**

Customer Sample ID: **FD120120-01**

Collected By: **Eduardo Salazar**

Oxidor Sample ID: **20120035-001**

Collector Affiliation: **City of Frisco**

Collected: **12/01/20 13:30**

Matrix: **Liquid**

<u>Bottle Type</u>	<u>Count</u>	<u>Collection Method</u>	<u>Parts / Interval</u>	<u>Indicated / Observed Preservation</u>	<u>pH</u>
1000 mL Plastic	1	Grab		Temp	-

Customer Sample ID: **FD120120-02**

Collected By: **Eduardo Salazar**

Oxidor Sample ID: **20120035-002**

Collector Affiliation: **City of Frisco**

Collected: **12/01/20 13:40**

Matrix: **Liquid**

<u>Bottle Type</u>	<u>Count</u>	<u>Collection Method</u>	<u>Parts / Interval</u>	<u>Indicated / Observed Preservation</u>	<u>pH</u>
250 mL Plastic	1	Grab		HNO3	<2

Customer Sample ID: **SO120120-01**

Collected By: **Eduardo Salazar**

Oxidor Sample ID: **20120035-003**

Collector Affiliation: **City of Frisco**

Collected: **12/01/20 13:50**

Matrix: **Liquid**

<u>Bottle Type</u>	<u>Count</u>	<u>Collection Method</u>	<u>Parts / Interval</u>	<u>Indicated / Observed Preservation</u>	<u>pH</u>
1000 mL Plastic	1	Grab		Temp	-

Customer Sample ID: **SO120120-02**

Collected By: **Eduardo Salazar**

Oxidor Sample ID: **20120035-004**

Collector Affiliation: **City of Frisco**

Collected: **12/01/20 13:50**

Matrix: **Liquid**

<u>Bottle Type</u>	<u>Count</u>	<u>Collection Method</u>	<u>Parts / Interval</u>	<u>Indicated / Observed Preservation</u>	<u>pH</u>
250 mL Plastic	1	Grab		HNO3	<2

Customer Sample ID: **L120120-01**

Collected By: **Eduardo Salazar**

Oxidor Sample ID: **20120035-005**

Collector Affiliation: **City of Frisco**

Collected: **12/01/20 14:00**

Matrix: **Liquid**

<u>Bottle Type</u>	<u>Count</u>	<u>Collection Method</u>	<u>Parts / Interval</u>	<u>Indicated / Observed Preservation</u>	<u>pH</u>
1000 mL Plastic	1	Grab		Temp	-

City of Frisco
Eduardo Salazar

Sample Preservation Verification

Project Name: **Raw Grab Samples Quarterly**

Customer Sample ID: **L120120-02**

Collected By: **Eduardo Salazar**

Oxidor Sample ID: **20120035-006**

Collector Affiliation: **City of Frisco**

Collected: **12/01/20 14:00**

Matrix: **Liquid**

Indicated / Observed

<u>Bottle Type</u>	<u>Count</u>	<u>Collection Method</u>	<u>Parts / Interval</u>	<u>Preservation</u>	<u>pH</u>
250 mL Plastic	1	Grab		HNO3	<2

Sample conditions at time of receipt at laboratory verified in part or in whole by:

A.J.



Documentation

PROJECT DESCRIPTION: **Raw Grab Samples Quarterly**

City of Frisco

7471 Fifth Street
P.O. Box 250
Frisco, TX 75034
Telephone 972-335-2121
Facsimile 972-377-2707

CHAIN OF CUSTODY RECORD

INDUSTRY: City of Frisco		OUTFALL: Influent water flows		SAMPLER: Eduardo Salazar					
ADDRESS: 7471 Fifth Street Frisco, Texas 75034		NATURE OF INDUSTRY: Secondary Smelting		REPRESENTING: City of Frisco					
INDUSTRY REPRESENTATIVE (S): Eduardo Salazar		SIGNATURE: <i>Eduardo Salazar</i>							
SAMPLE No. / IDENTIFICATION	DATE (S)	TIME (S)	SAMPLE TYPE **	ANALYSES REQUESTED	pH	DATE TIME	INITIALS	PRESERVATION/ REMARKS/CONTAINERS / ALL SAMPLES COOL ≤ 6° C	INITIALS
20120035									
FD120120-01	12/01/20	1:30 pm	Grab	TDS-TSS	9.23			None/1 liter	ES
FD120120-02	12/01/20	1:40 pm	Grab	As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn	9.23			HNO3//250ml/plastic	ES
SO120120-01	12/01/20	1:50 pm	Grab	TDS-TSS	3.6			None/1 liter	ES
SO120120-02	12/01/20	1:50 pm	Grab	As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn	3.6			HNO3//250ml/plastic	ES
L120120-01	12/01/20	2:00 pm	Grab	TDS-TSS	8.21			None/1 liter	ES
L120120-02	12/01/20	2:00 pm	Grab	As,Cd,Cu,Mn, Ni,Ag,Fe,Ba,C r,Pb,Hg,Se,Zn	8.21			HNO3//250ml/plastic	ES

FIELD INFORMATION: Raw Grab Samples Quarterly

E-MAIL RESULTS TO: Billy.king@oxidor.com

RELINQUISHED BY: (Signature)	REPRESENTING	DATE	TIME	RECEIVED BY: (Signature)	REPRESENTING	DATE	TIME
<i>Eduardo Salazar</i>	City of Frisco	12-02-20	12:15 PM	<i>Billy King</i>	JCS6	12/2/2020	10:15 AM
<i>Billy King</i>	JCS6	12/2/2020	11:45 PM	<i>Ang</i>	OX 100P	12/02/20	11:45

** TC = TIME COMPOSITE (96 PARTS) FC = FLOW WEIGHTED COMPOSITE (96 PARTS) G = GRAB